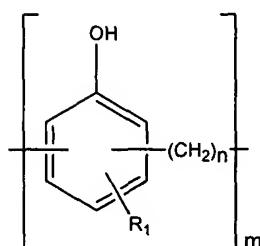


# CLAIMS

1. A jet fuel composition comprising

(i) a jet fuel; and

5 (ii) a compound of Formula I



Formula I

wherein m is at least 1;

wherein n is 0 or 1;

wherein when m is 1, n is 0;

wherein the or each R<sub>1</sub> is a hydrocarbyl group with the proviso that the or each R<sub>1</sub> is free  
10 of carboxylic acid and carboxylic ester groups; and

wherein when m is 1, R<sub>1</sub> is a polymeric group comprising at least 12 carbon atoms.

2. A jet fuel composition according to claim 1 further comprising (iii) an antioxidant.

15 3. A jet fuel composition according to claim 1 or claim 2 further comprising (iv) a metal deactivator.

4. A jet fuel composition according to any one of claims 1, 2 or 3 wherein m is 1.

20 5. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a hydrocarbon group.

6. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a linear or branched alkyl group.

25

7. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a C<sub>1</sub>-C<sub>200</sub> group.

8. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a  
30 C<sub>10</sub>-C<sub>200</sub> group.

9. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  is a  $C_{40}$ - $C_{180}$  group.

5 10. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  is a branched alkyl group.

11. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  is a polyalkenyl group.

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12. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  is polyisobutene (PIB).

13. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  has a  
15 molecular weight of from 200 to 2500.

14. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  has a molecular weight of 500 to 2500.

20 15. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  has a molecular weight of approximately 750.

16. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  has a molecular weight of approximately 1000.

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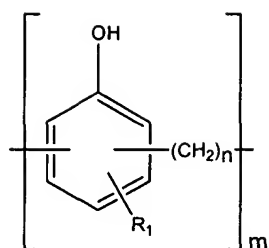
17. A jet fuel composition according to any one of the preceding claims wherein  $R_1$  has a molecular weight of approximately 2300.

18. A jet fuel composition according to any one of the preceding claims comprising

30

(i) a jet fuel

(ii) a compound of Formula I



Formula I

wherein m is 1 and n is 0;

wherein R<sub>1</sub> is a polyisobutene with a molecular weight of from 200 to 2500;

(iii) an antioxidant; and

(iv) a metal deactivator.

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19. A jet fuel composition according to any one of claims 1, 2 or 3 wherein m is greater than 1.

20. A jet fuel composition according to claim 19 wherein R<sub>1</sub> is a hydrocarbon group.

10

21. A jet fuel composition according to claim 19 or 20 wherein R<sub>1</sub> is a linear or branched alkyl group.

22. A jet fuel composition according to any one of claims 19 to 21 wherein R<sub>1</sub> is a C<sub>1</sub>-C<sub>50</sub> group.

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23. A jet fuel composition according to any one of claims 19 to 22 wherein R<sub>1</sub> is a C<sub>1</sub>-C<sub>25</sub> group.

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24. A jet fuel composition according to any one of claims 19 to 23 wherein R<sub>1</sub> is a C<sub>5</sub>-C<sub>15</sub> group.

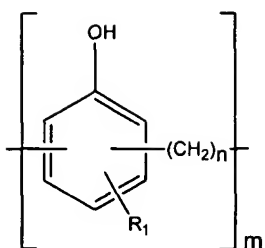
25. A jet fuel composition according to any one of claims 19 to 24 wherein m is at least 4.

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26. A jet fuel composition according to any one of claims 19 to 25 comprising

(i) a jet fuel

(ii) a compound of Formula I



Formula I

wherein m is greater than 1 and n is 1;

wherein each R<sub>1</sub> is a C<sub>1</sub>-C<sub>50</sub> hydrocarbyl group free of carboxylic acid and carboxylic ester groups.

(iii) an antioxidant; and

5 (iv) a metal deactivator.

27. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is para substituted relative to the OH group.

10 28. A jet fuel composition according to any one of the preceding claims wherein the (CH<sub>2</sub>)<sub>n</sub> group is ortho substituted relative to the OH group.

29. A jet fuel composition according to any one of claims 2 to 28 wherein the antioxidant is a hindered phenol antioxidant.

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30. A jet fuel composition according to claim 29 wherein the antioxidant is 2,6-di-t-butyl-4-methyl phenol (BHT).

31. A jet fuel composition according to any one of claims 2 to 28 wherein the antioxidant  
20 is a phosphonate.

32. A jet fuel composition according to claim 31 wherein the antioxidant is dilauryl phosphonate.

25 33. A jet fuel composition according to any one of claims 3 to 32 wherein the metal deactivator is N,N'-disalicylidene 1,2-propanediamine.

34. A jet fuel composition according to any one of the preceding claims wherein the compound of Formula I is present in an amount of 50-200mg/L.

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35. A jet fuel composition according to any one of the preceding claims wherein the compound of Formula I is present in an amount of 80-120mg/L.

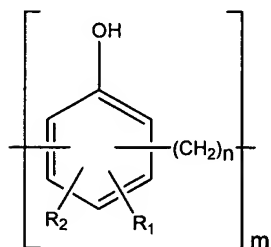
36. A jet fuel composition according to any one of claims 2 to 35 wherein the antioxidant is present in an amount of 1-50mg/L.

37. A jet fuel composition according to claim 36 wherein the antioxidant is present in an amount of 1-30mg/L.

38. A jet fuel composition according to any one of claims 3 to 37 wherein the metal deactivator is present in an amount of 0.05 – 10mg/L.

39. A jet fuel composition according to claim 38 wherein the metal deactivator is present in an amount of 0.5 – 5mg/L.

40. A jet fuel composition according to any one of the preceding claims wherein the compound of Formula I is a compound of Formula II



Formula II

wherein the or each  $\text{R}_2$  is an optional hydrocarbyl group with the proviso that the or each  $\text{R}_2$  is free of carboxylic acid and carboxylic ester groups; and wherein  $m$ ,  $n$  and  $\text{R}_1$  are as defined in any one of the preceding claims.

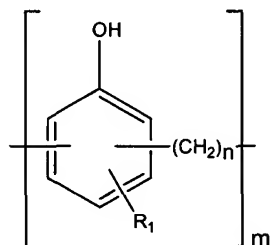
41. Use of a compound of Formula I as defined in any one of the preceding claims for the inhibition of oxidation of a jet fuel composition as defined in any one of the preceding claims.

42. Use of a compound of Formula I as defined in any one of the preceding claims for the inhibition of deposit formation in a jet fuel composition as defined in any one of the preceding claims.

43. Use of a compound of Formula I as defined in any one of the preceding claims for the inhibition of particulate formation from the oxidation product(s) of a jet fuel composition as defined in any one of the preceding claims.

5 44. Use of a compound of Formula I as defined in any one of the preceding claims for the solubilisation of deposits and/or deposit precursors in a jet fuel composition as defined in any one of the preceding claims.

45. A method for inhibiting deposit formation in a jet fuel at a temperature of from 100 to  
10 335°C, the method comprising combining with the jet fuel a compound of Formula I



Formula I

wherein m is at least 1;

wherein n is 0 or 1;

wherein when m is 1, n is 0;

wherein the or each R<sub>1</sub> is a hydrocarbyl group with the proviso that the or each R<sub>1</sub> is free  
15 of carboxylic acid and carboxylic ester groups; and  
wherein when m is 1, R<sub>1</sub> is a polymeric group comprising at least 12 carbon atoms.

46. A method according to claim 45 wherein the compound is as defined in any one of  
20 claims 2 to 40.

47. A jet fuel composition substantially as hereinbefore described with particular  
reference to any one of the Examples.

48. Use substantially as hereinbefore described with particular reference to any one of  
25 the Examples.

49. A method substantially as hereinbefore described with particular reference to any  
one of the Examples.

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